Biotechnologies towards Sustainable Development in Malaysia

Zarina Zainuddin

IIUM PRESS
INTERNATIONAL ISLAMIC UNIVERSITY MALAYSIA

Biotechnologies towards Sustainable Development in Malaysia

Zarina Zainuddin

IIUM Press

Published by:
IIUM Press
International Islamic University Malaysia

First Edition, 2011

Perpustakaan Negara Malaysia Cataloguing-in-Publication Data

Zarina Zainuddin
Biotechnologies towards Sustainable Development in Malaysia
Zarina Zainuddin
Include index
Bibliography: p. 149

ISBN: 978-967-418-200-7

Member of Majlis Penerbitan Ilmiah Malaysia – MAPIM
(Malaysian Scholarly Publishing Council)

Printed by :
IIUM PRINTING SDN. BHD.
No. 1, Jalan Industri Batu Caves 1/3
Taman Perindustrian Batu Caves
Batu Caves Centre Point
68100 Batu Caves
Selangor Darul Ehsan

Table of Contents

Chapter 23

Extraction of chitin and chitosan from Malaysian cephalopods "Sotong mengaban" (*Sepioteuthis lessoniana*) and "Sotong jarum" (*Loligo vulgaris*)

[*]Ahmed Jalal Khan Chowdhury, Mohd Hazman Mohd Salleh, Deny Susanti, Akbar John and Jamaluddin Daud

[*]*Corresponding author: jkchowdhury@ium.edu.my*

Introduction

Chitin and its derivative chitosan are natural carbohydrate polymer found in the exoskeleton of crustaceans such as crabs, shrimps and lobster, including the exoskeleton of zooplankton organisms, coral and jellyfishes. Besides that, chitin also can be found in the exoskeleton of the insects such as ladybugs and butterflies and might as well be found in the cell walls of the mushroom and fungi (Tharanathan and Kittur, 2003). Chitosan may be converted from chitin, by *N*-deacytelation process. Commercially available chitosan is produced with a degree of deacytelation typically ranging from 60% of 2-amino-2-deoxy-D-glucose residue and above. Chitosan and its derivatives have wide range of applications includes biomedicine, food, biotechnology, agriculture, cosmetic and coagulants for waste treatment (Aranaz *et al.*, 2009). Chitosan and its derivatives include analgesic effect, antitumor activity, anticholesterolemic, emulsifying agent and antimicrobial activity.

The types of chitosan depend on the source of chitin which exists either α-chitin or β-chitin, depending on whether the linkage between glucosamine units is alpha- or beta-; for